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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,171	10/23/2003	Edgar A. O'Rear III	820233.02310	8356
72766 7590 12/11/2008 Hall, Estill, Hardwick, Gable, Golden & Nelson, P.C. 100 North Broadway Chase Tower, Suite 2900 Oklahoma City, OK 73102				
EXAMINER				
AHMED, SHEEBA				
ART UNIT		PAPER NUMBER		
1794				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/692,171

**Applicant(s)**

O'REAR ET AL.

**Examiner**

SHEEBA AHMED

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 9-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 34 is/are allowed.
- 6) ☒ Claim(s) 9-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 14, 2008 has been entered.

### ***Amendments to Claims***

2. Claims 1-8 have been cancelled. New claims 9-34 have been added.  
**Claims 9-34 are now pending and under consideration.**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9-17, 19-28, and 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Hartwell et al. (US 5,106,691).

Hartwell et al. disclose a method of coating a substrate surface (***corresponding to the first and/or second surface of the sheet of material of the claimed***

**invention)** wherein the substrate surface is contacted with a surfactant solution comprising a liquid in which at least a first surfactant is dissolved so that an interface is formed between the substrate surface and the surfactant solution under conditions which promote the assembly at the interface of surfactant molecules, such assembled molecules defining a surfactant template for the film to be produced. Finally, the monomer molecules are polymerized to form a polymeric film dimensionally determined by the surfactant interface (**such a method corresponds to the admicellar polymerization of the claimed invention**). Such a method may be used to coat the surface of objects having non-planer surfaces or to coat porous objects with an ultra-thin coating (Column 1, lines 18-37 and 55-60). The surfactant is sodium dodecyl sulfate (Column 4, lines 36-40 and the Examples). A suitable monomer is styrene and a suitable initiator is azobisisobutyronitrile or persulfate wherein the reaction is conducted in a heated water bath having a temperature of 60-70°C for 15-20 minutes (Column 5, lines 60-66 and Column 7, lines 23-24). The polymeric film formed is hydrophobic (See claim 1). All limitations of claims 9-17, 19-28, and 31-33 are disclosed in the above reference.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 18, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Hartwell et al. (US 5,106,691).

Harwell et al., as discussed above, disclose an admicellar method of polymerizing a polymeric film on a porous substrate but do not teach that the reaction may be carried out at 60-100°C for 30 to 180 minutes.

However, it would have been obvious to one of ordinary skill in the art to optimize the reaction temperature and the reaction time given that Hartwell et al. teach that the reaction may be carried out until the onset of emulsion formation and bulk polymerization as evidenced by the appearance of cloudiness in the reaction supernatant (Column 8, lines 18-27).

5. Claims 9-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diehl et al. (US 5,623,015) in view of Hartwell et al. (US 5,106,691).

Diehl et al. disclose a latex binder composition comprised of vinyl-substituted aromatic monomers such as styrene (Column 2, lines 26-43) a free radical initiator such as sodium persulfate (Column 4, lines 7-10) and an anionic surfactant such as sodium dodecyl sulfate (Column 5, lines 33-40). The polymerization is generally carried out at a temperature of 55 to 95°C (Column 5, lines 61-62). The latex binder composition may be applied to non-woven cellulose substrate such as paper and other substrates containing polyester, nylon or acrylates (Column 6, lines 29-35).

Diehl et al. do not teach that an admicellar polymerization method may be used to coat the substrate such that it results in the formation of a thin polymer film thereon.

However, Harwell et al. disclose a method of coating a substrate surface wherein the substrate surface is contacted with a surfactant solution comprising a liquid in which at least a first surfactant is dissolved so that an interface is formed between the substrate surface and the surfactant solution under conditions which promote the assembly at the interface of surfactant molecules, such assembled molecules defining a surfactant template for the film to be produced. Finally, the monomer molecules are polymerized to form a polymeric film dimensionally determined by the surfactant interface. Such a method may be used to coat the surface of objects having non-planar surfaces or to coat porous objects with an ultra-thin coating (Column 1, lines 18-37 and 55-60). The surfactant is sodium dodecyl sulfate (Column 4, lines 36-40 and the Examples). A suitable monomer is styrene and a suitable initiator is azobisisobutyronitrile or persulfate wherein the reaction is conducted in a heated water bath having a temperature of 60-70°C for 15-20 minutes (Column 5, lines 60-66 and Column 7, lines 23-24). The polymeric film formed is hydrophobic (See claim 1). Such polymeric films are ultrathin and possess a high degree of two-dimensional homogeneity and can be constructed to display a variety of chemical properties (Column 1, lines 41-54).

Accordingly, it would have been obvious to one having ordinary skill in the art to form a coating of a vinyl-substituted aromatic monomers such as styrene using an admicellar polymerization as taught by Hartwell et al. given that Hartwell et al. specifically teach that such a method allows the formation of polymeric films that are

ultrathin and possess a high degree of two-dimensional homogeneity and can be constructed to display a variety of chemical properties (Column 1, lines 41-54).

6. Claims 9-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reynolds et al. (US 5,919,716) in view of Hartwell et al. (US 5,106,691).

Reynolds et al. disclose self-crosslinking polymer compositions useful as coatings for non-woven fabrics (Column 1, lines 10-15) and comprising a vinyl polymer component such a styrene monomer (Column 3, lines 1-10 and Column 4, lines 27-29), a crosslinker such as sodium persulfate (Column 3, lines 24-26 and Example 1) and a surfactant such as sodium dodecyl sulfate (Column 5, lines 20-30). The reaction is carried out at a temperature of 20 to 90°C (Column 5, lines 50-55). Example 1 indicates that the reaction can be carried out a temperature of 60°C for one hour. Substrates that may be coated with the self-crosslinkable polymeric composition include polyesters, PP, PE and cellulose substrates (Column 10, lines 23-28).

Reynolds et al. do not teach that an admicellar polymerization reaction may be used to coat the substrate such that it results in the formation of a thin polymer film thereon.

However, Harwell et al. disclose a method of coating a substrate surface wherein the substrate surface is contacted with a surfactant solution comprising a liquid in which at least a first surfactant is dissolved so that an interface is formed between the substrate surface and the surfactant solution under conditions which promote the assembly at the interface of surfactant molecules, such assembled molecules defining a

surfactant template for the film to be produced. Finally, the monomer molecules are polymerized to form a polymeric film dimensionally determined by the surfactant interface. Such a method may be used to coat the surface of objects having non-planer surfaces or to coat porous objects with an ultra-thin coating (Column 1, lines 18-37 and 55-60). The surfactant is sodium dodecyl sulfate (Column 4, lines 36-40 and the Examples). A suitable monomer is styrene and a suitable initiator is azobisisobutyronitrile or persulfate wherein the reaction is conducted in a heated water bath having a temperature of 60-70°C for 15-20 minutes (Column 5, lines 60-66 and Column 7, lines 23-24). The polymeric film formed is hydrophobic (See claim 1). Such polymeric films are ultrathin and possess a high degree of two-dimensional homogeneity and can be constructed to display a variety of chemical properties (Column 1, lines 41-54).

Accordingly, it would have been obvious to one having ordinary skill in the art to form a coating of a vinyl-substituted aromatic monomers such as styrene using an admicellar polymerization as taught by Hartwell et al. given that Hartwell et al. specifically teach that such a method allows the formation of polymeric films that are ultrathin and possess a high degree of two-dimensional homogeneity and can be constructed to display a variety of chemical properties (Column 1, lines 41-54).

***Allowable Subject Matter***

7. Claim 34 is allowed.



***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHEEBA AHMED whose telephone number is (571)272-1504. The examiner can normally be reached on Monday-Friday from 8am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571)272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sheeba Ahmed/  
Primary Examiner, Art Unit 1794